Figure 1: Overall Extranet System

Figure contents (labels):

- T Spaces server 134
- T Spaces API 136
- extranet monitor 120
- tuplespace data 132
- T Space Module 130
- mediator 110
- 140
- 150
- 152
- 150
- registration/ configuration agent 161
- search agents 162-164
- retrieval agents 166-168
- 155
- 158
- extranet API 169
- 160
- databases of educational content
- Extranet site (Domino server) - 150
- Extranet -100

210 Extranet Setup Tuplespace

Contains:
- list of database templates that are available to share across extranet
- master list of all possible geographic locations

132 Tuplespace Data

1. Extranet Setup
2. Extranet Structure
3. Extranet Site
4. Extranet Site
.
.
.
N. Extranet Site

220 Extranet Structure Tuplespace

Holds information about each one of the extranet sites. Contains:
- geographic location
- unique site identifier
- server address
- databases to share

230 Extranet Site Tuplespace 132 A, B, ...

Temporary placeholder of tuples to be routed to extranet sites. Contains:
- type of action (search request/result, document request/result)
- requestor site id
- user id of requestor
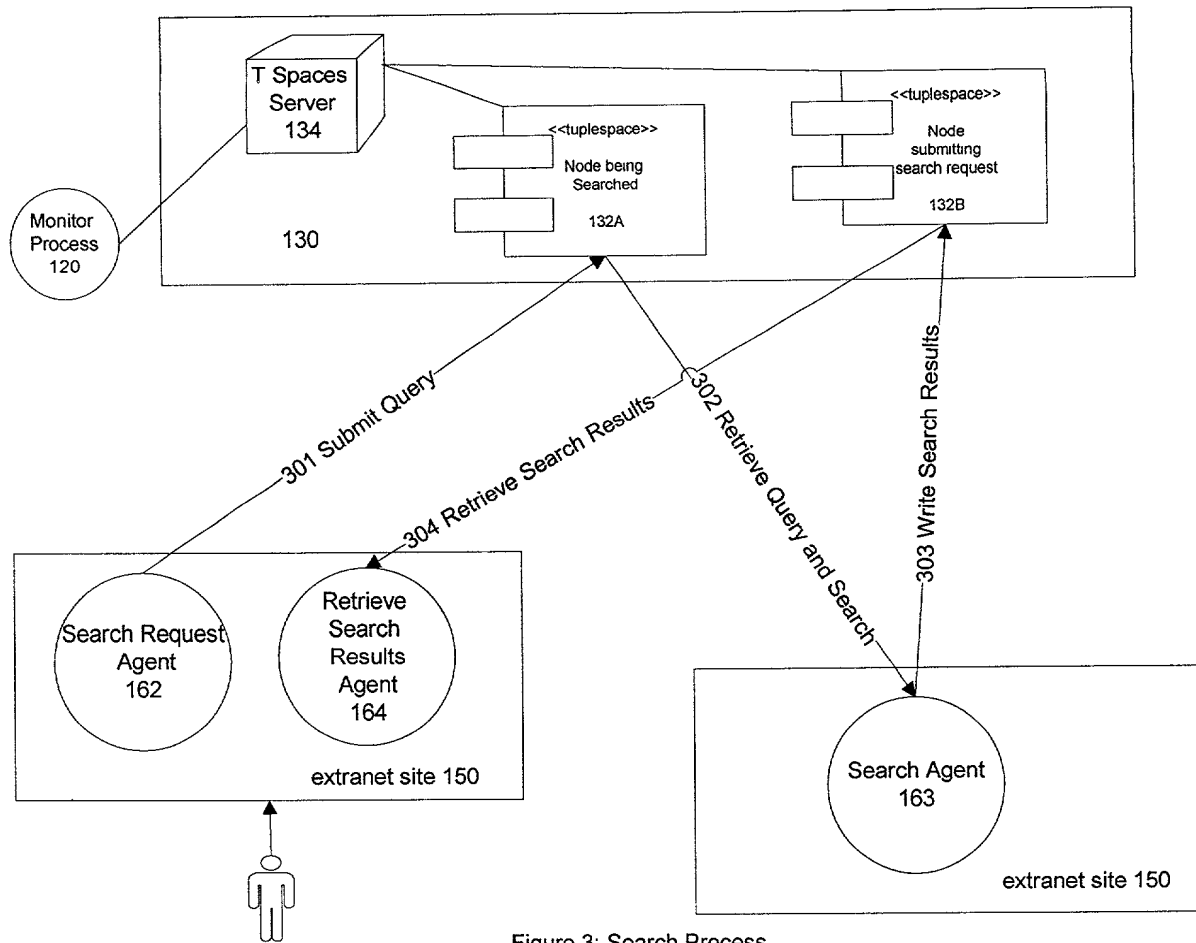- contents (XML)

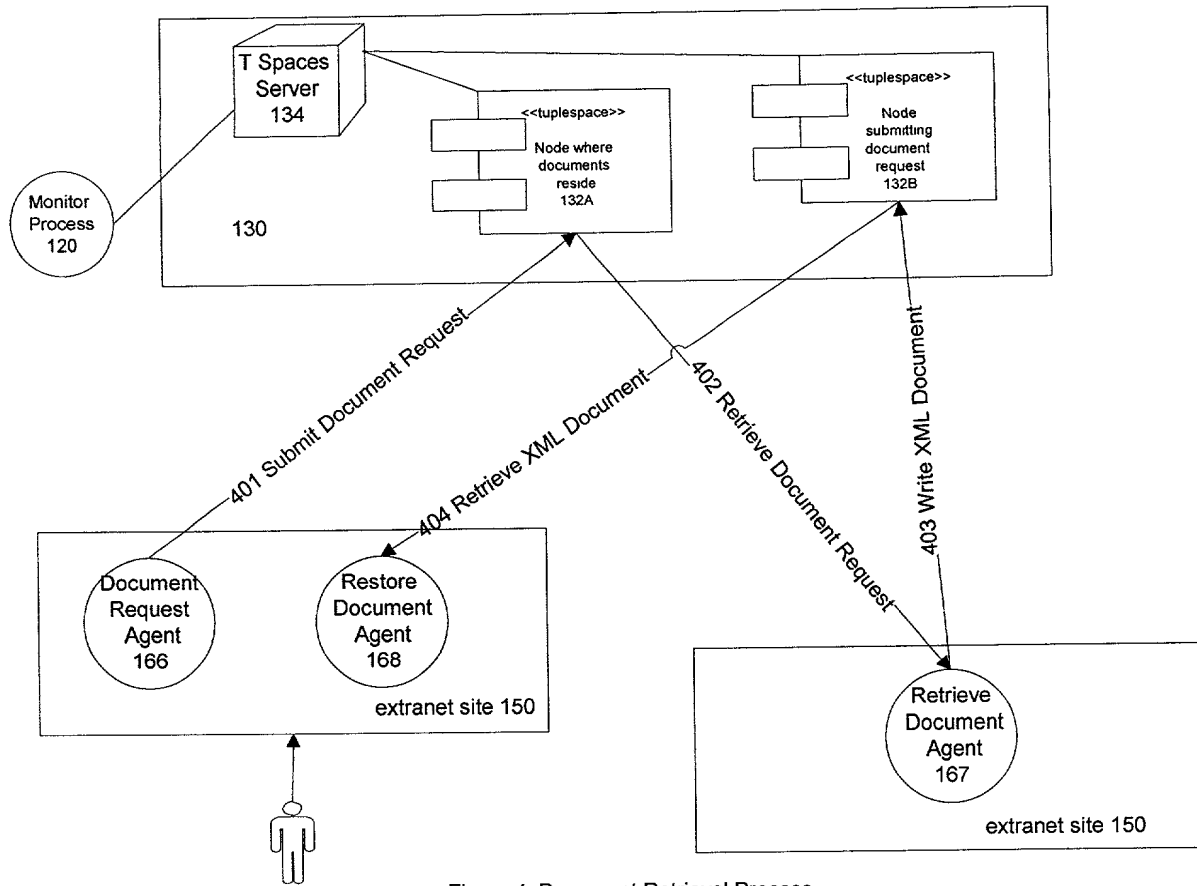Figure 2: Tuplespace data structure

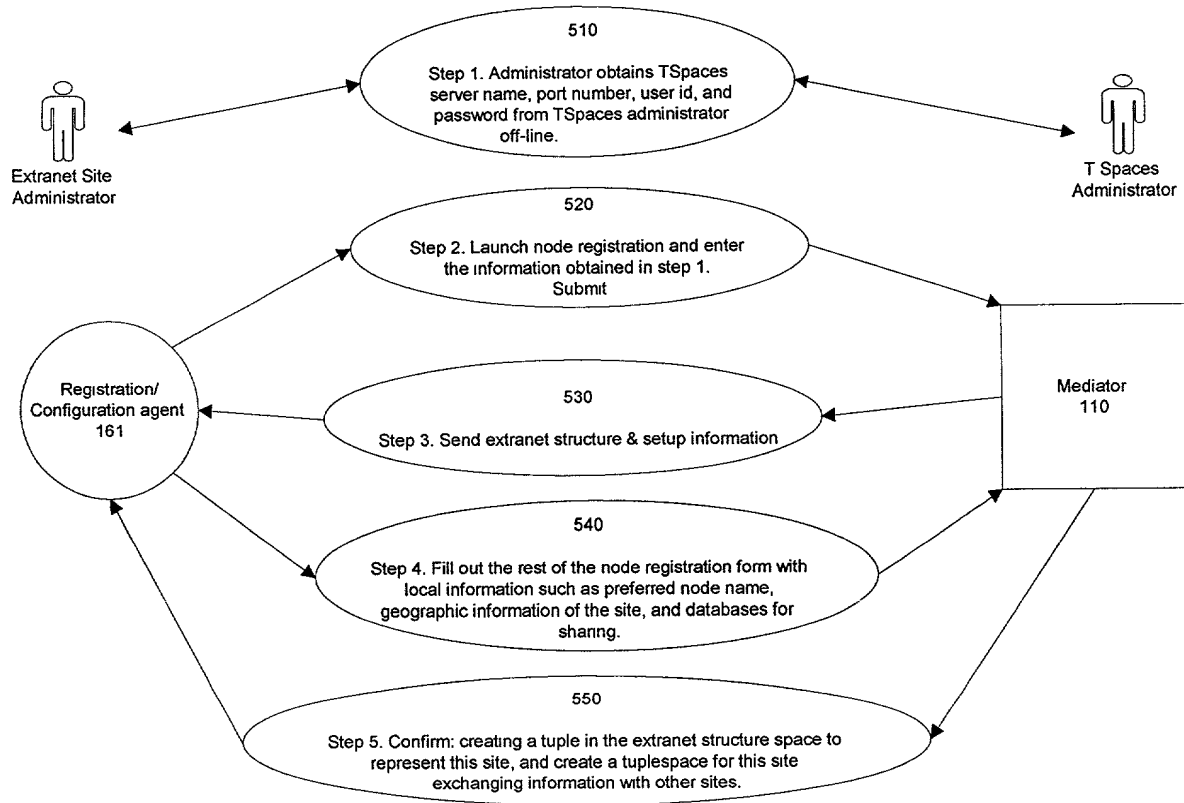Figure 3: Search Process

Figure 4: Document Retrieval Process

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Extranet Site Administrator

510

Step 1. Administrator obtains TSpaces server name, port number, user id, and password from TSpaces administrator off-line.

T Spaces Administrator

520

Step 2. Launch node registration and enter the information obtained in step 1. Submit

Registration/ Configuration agent 161

530

Step 3. Send extranet structure & setup information

Mediator 110

540

Step 4. Fill out the rest of the node registration form with local information such as preferred node name, geographic information of the site, and databases for sharing.

550

Step 5. Confirm: creating a tuple in the extranet structure space to represent this site, and create a tuplespace for this site exchanging information with other sites.

Figure 5: Site Configuration/ Registration Process

User

| 610 |
| Search request |
| submitted |

Search Request Agent
162

620
Retrieve destination
site(s) information

630
Generate XML for query to be
submitted

640
Submit search request tuple to
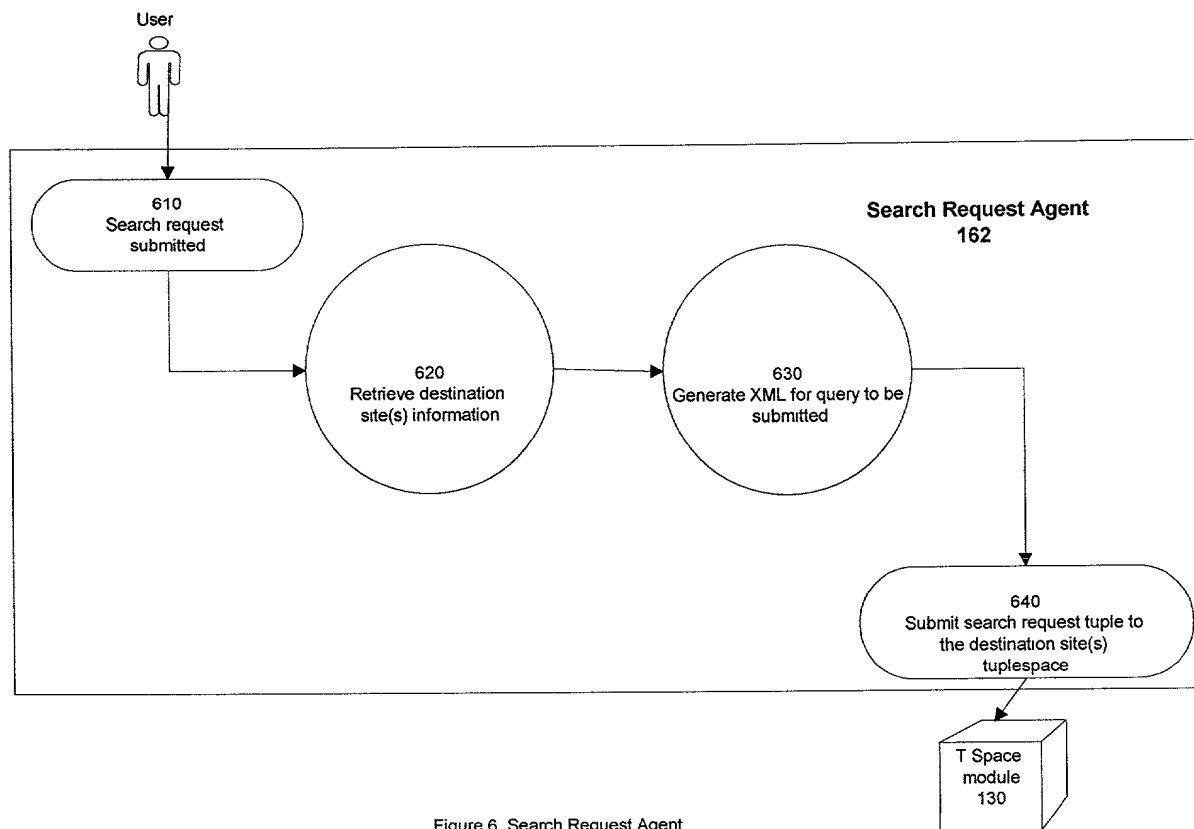the destination site(s)
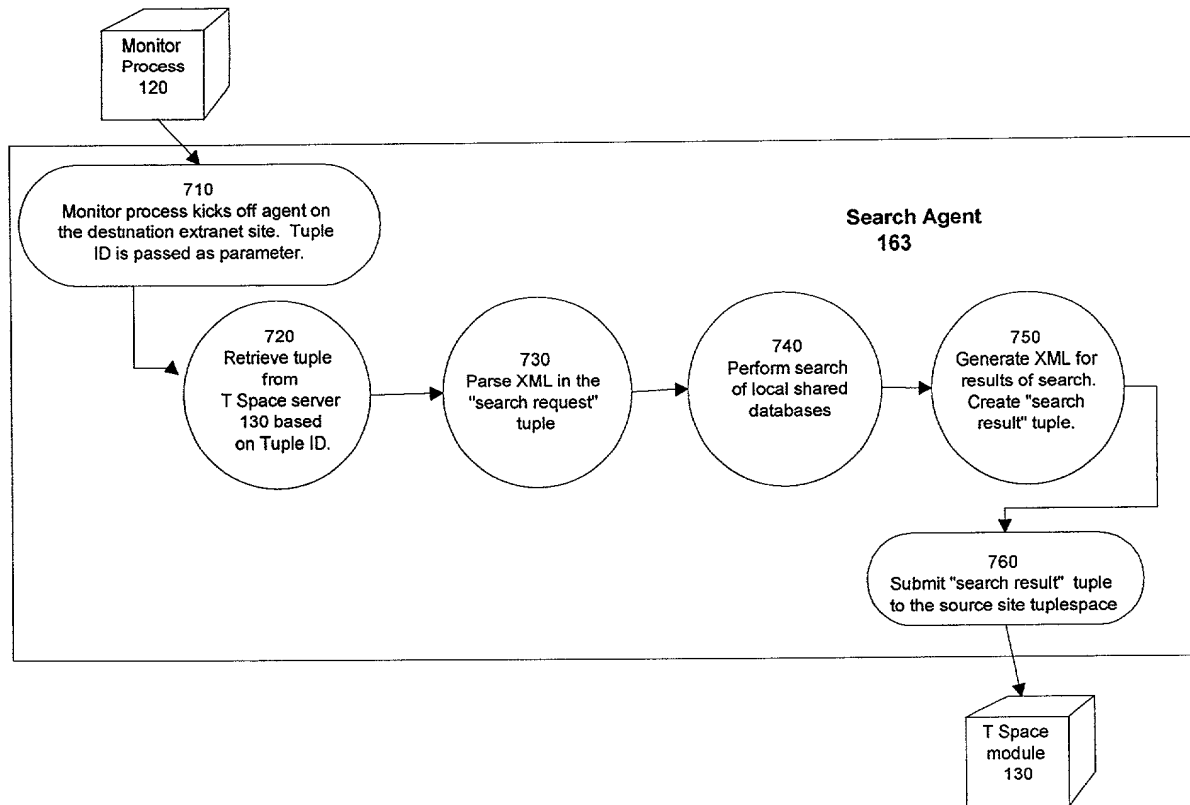tuplespace

T Space
module
130

Figure 6. Search Request Agent

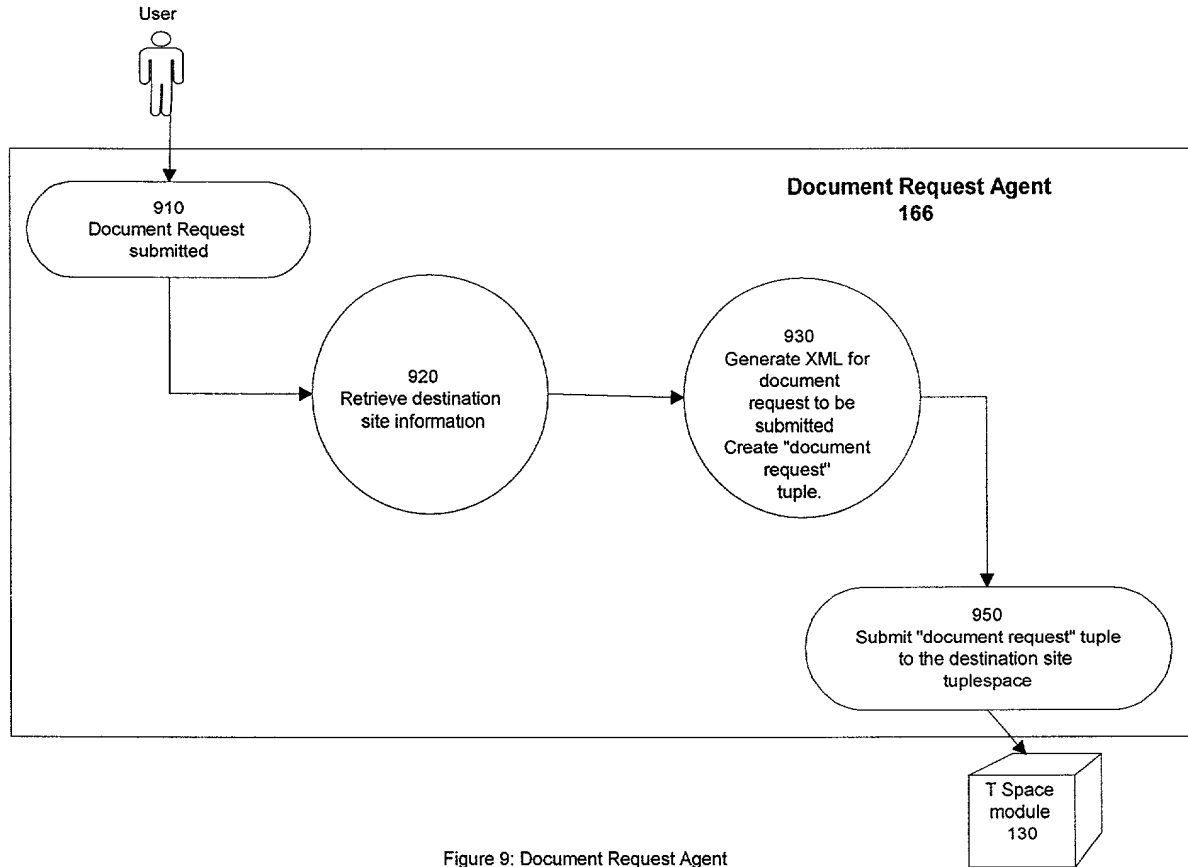Figure 7: Search Agent
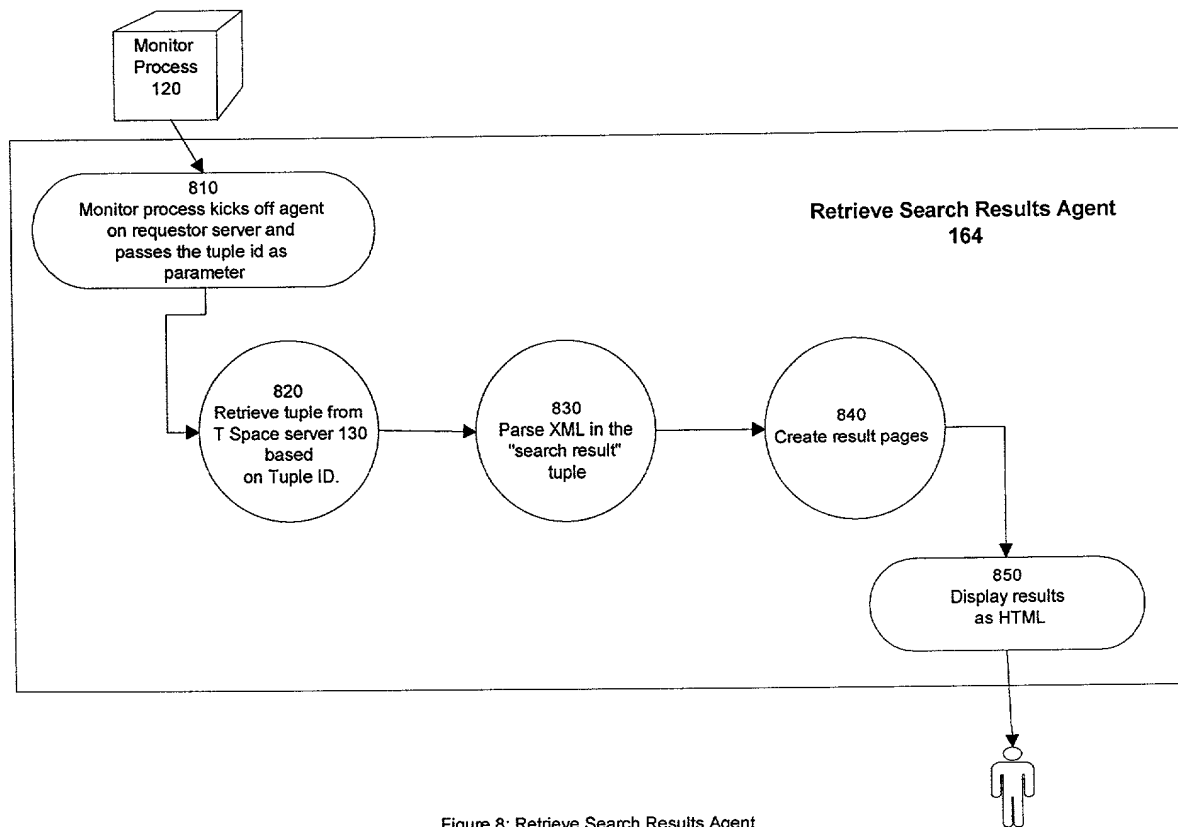
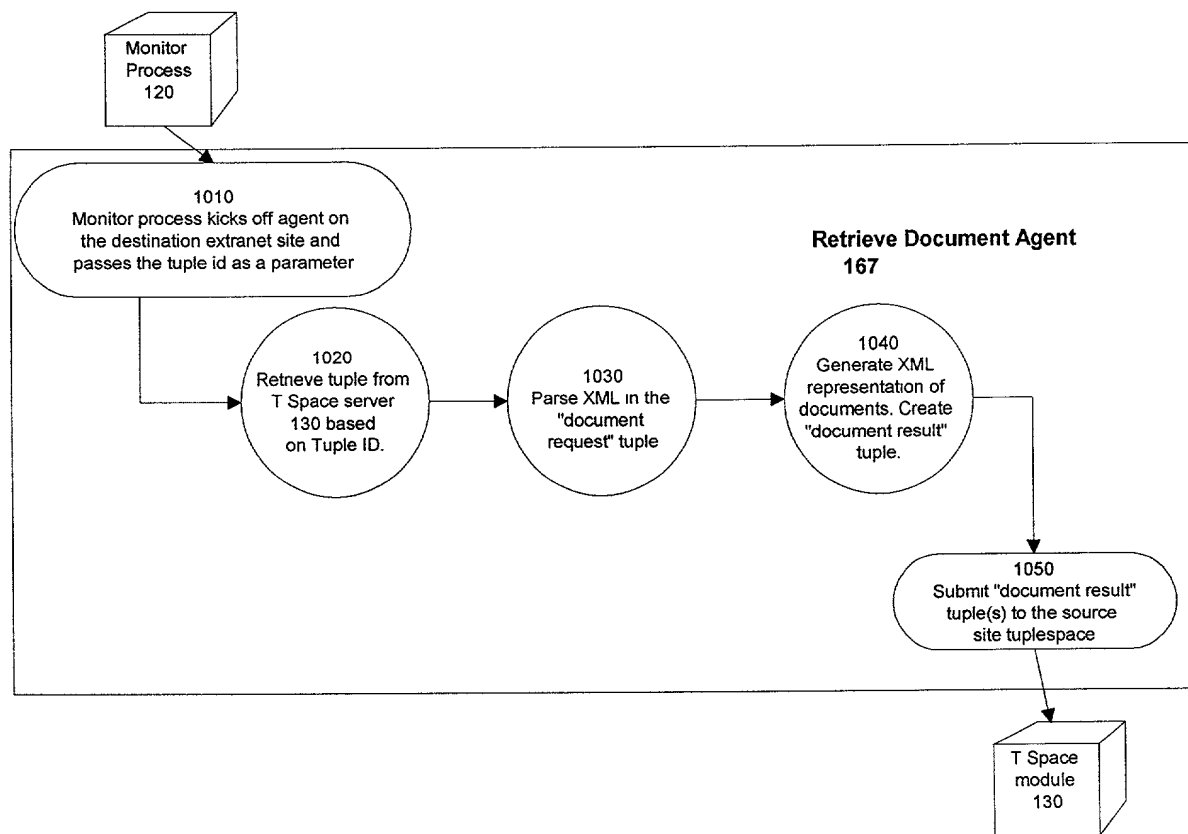Figure 8: Retrieve Search Results Agent

User

Document Request Agent
166

910
Document Request
submitted

920
Retrieve destination
site information

930
Generate XML for
document
request to be
submitted
Create "document
request"
tuple.

950
Submit "document request" tuple
to the destination site
tuplespace

T Space
module
130

Figure 9: Document Request Agent

Figure 10: Retrieve Document Agent

Monitor
Process
120

Restore Document Agent
168

1110
Monitor process kicks off agent
on requestor server and
passes the tuple id as
parameter

1120
Retneve tuple
from
T Space
server 130
based
on Tuple ID.

1130
Transform XML in
the "document
result" tuple into
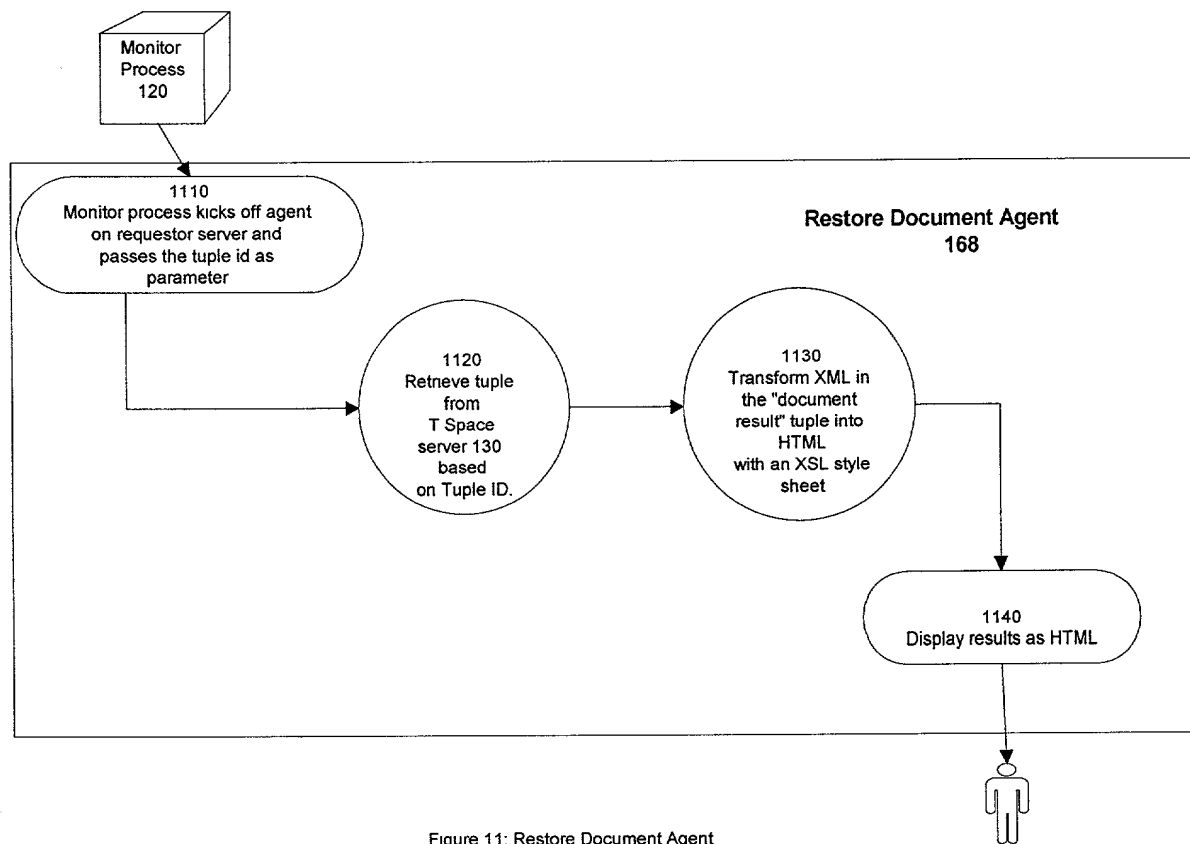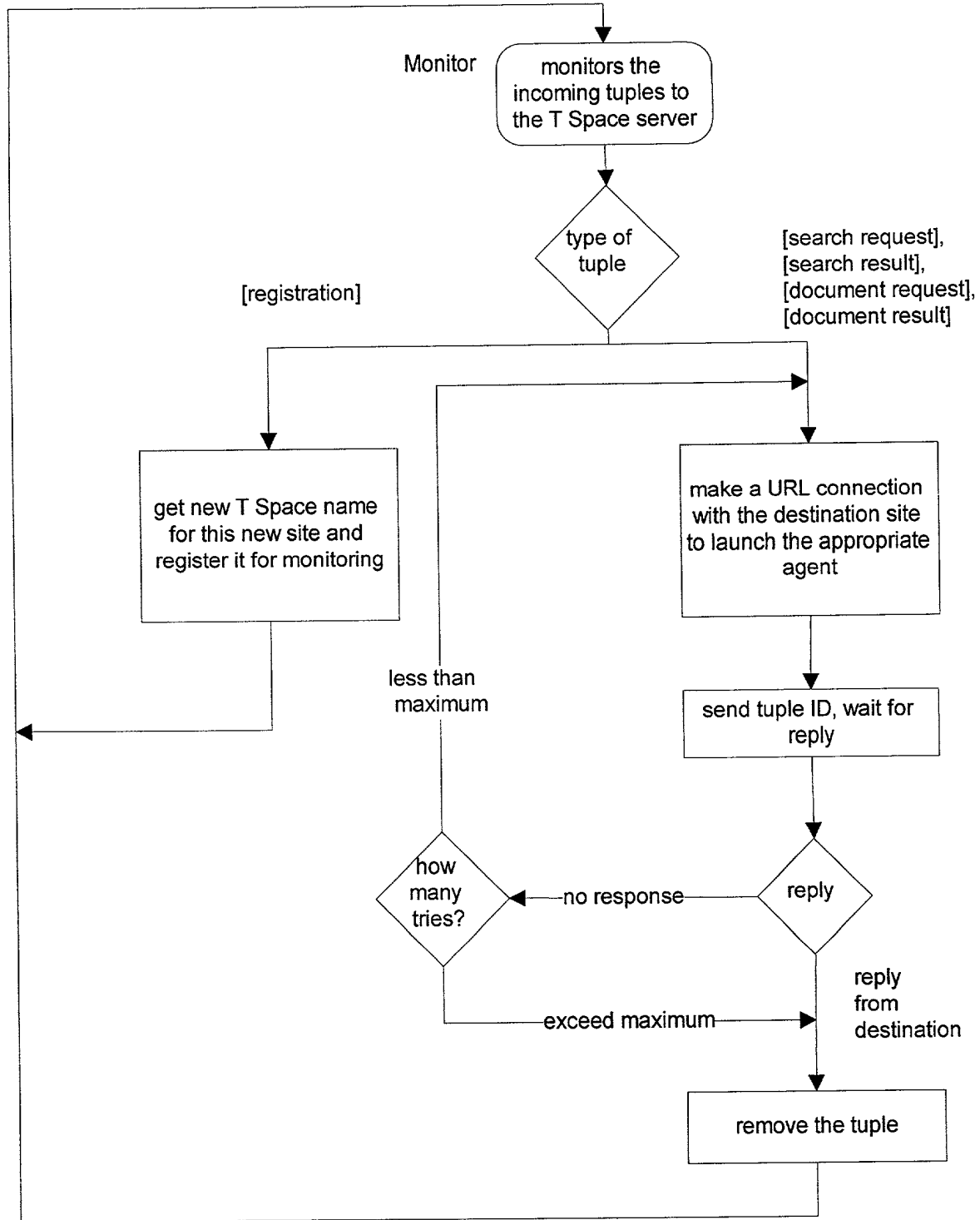HTML
with an XSL style
sheet

1140
Display results as HTML

Figure 11: Restore Document Agent

Figure 12: Extranet Monitor Process